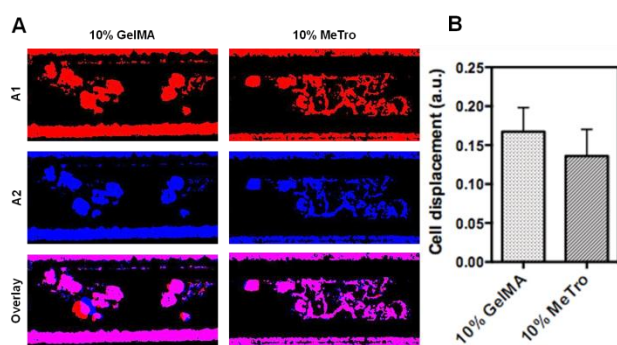


Supplementary information



Supplementary Fig. 1. Cell response to perfusion flow 3h after cell seeding. The flow rate was changed from 40 μ L/hr to 100 μ L/hr. This flow rate change was captured in the first second of a 1 min long video. Cell displacement was calculated by comparing the cell movement in the first (A1) and last frame (A2) of the video (overlay). (B) The average cell displacement inside microchannels coated with 10 % (w/v) GelMA and 10 % (w/v) MeTro, demonstrating that cell displacement due to the change in flow rate was slightly higher in GelMA-coated channels than in MeTro-coated ones.

Supporting Video SV1. The video depicts CMs flowing through a GelMA-coated channel. Few cells are attached to the channel walls. The video was recorded 3 hours after cell seeding.

Supporting Video SV2. The video depicts CMs flowing through a MeTro-coated channel. Most cells are attached to the channel, leaving few flowing cells. The video was recorded 3 hours after cell seeding.

Supporting Video SV3. The video depicts the contractile behavior of a myofiber cultured inside a MeTro-coated channel on day 6 of culture.

Supporting Video SV4. The video depicts the contractile behavior of a myofiber cultured inside a GelMA-coated channel on day 6 of culture.